



NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:31, and SEQ ID NO:34].

22 8. (Reiterated) An isolated protein comprising a *D. immitis* astacin metalloendopeptidase protein.

3 11. (Four Times amended) The protein of Claim 1, wherein said protein comprises at least a portion of [at least one] an amino acid sequence selected from the group consisting of [SEQ ID NO:3,] SEQ ID NO:4, [SEQ ID NO:5, SEQ ID NO:6,] SEQ ID NO:7, [SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10,] SEQ ID NO:31, and SEQ ID NO:34, wherein said portion selectively binds to an antibody raised against a protein having an amino acid sequence selected from the group consisting of [SEQ ID NO:3,] SEQ ID NO:4, [SEQ ID NO:5, SEQ ID NO:6,] SEQ ID NO:7, [SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10,] SEQ ID NO:11, SEQ ID NO:31, and SEQ ID NO:34; and wherein said portion comprises an at least 9 contiguous amino acid region of an amino acid sequence selected from the group consisting of [SEQ ID NO:3,] SEQ ID NO:4, [SEQ ID NO:5, SEQ ID NO:6,] SEQ ID NO:7, [SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10,] SEQ ID NO:11, SEQ ID NO:31, and SEQ ID NO:34.

4 12. (Reiterated) The protein of Claim 1, wherein said protein comprises an extended zinc-binding domain motif.

5 13. (Reiterated) The protein of Claim 1, wherein said protein is produced by a process comprising culturing in an effective medium a recombinant cell transformed with a nucleic acid molecule encoding said protein to produce said protein.

6 16. (Four Times Amended) A composition comprising an excipient and an isolated *D. immitis* [astacin metalloendopeptidase] protein encoded by a nucleic acid molecule that hybridizes to the complement of a nucleic acid molecule having a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:29, SEQ ID NO:30, SEQ ID NO:32, and SEQ ID NO:33 under conditions comprising (a) hybridizing in 2X SSPE, 1% Sarkosyl, 5X Denhardts and 0.1 mg/ml denatured salmon sperm and (b) washing in a solution comprising 2X SSPE and 1% Sarkosyl at 55°C, wherein said protein has astacin metalloendopeptidase activity [selectively binds to an antibody raised against a protein having an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:31, and SEQ ID NO:34].

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17.1 (Once Amended) The composition of Claim 16, wherein said composition further comprises at least one component selected from the group consisting of an [excipient, an] adjuvant and a carrier.

17.2 (Once Amended) A method to identify a compound capable of inhibiting astacin metalloendopeptidase activity of a parasite, said method comprising:

(a) contacting an isolated *D. immitis* protein having astacin endometallopeptidase activity encoded by a nucleic acid molecule that hybridizes to the complement of a nucleic acid molecule having a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:29, SEQ ID NO:30, SEQ ID NO:32, and SEQ ID NO:33, under conditions comprising (a) hybridizing in 2X SSPE, 1% Sarkosyl, 5X Denhardts and 0.1 mg/ml denatured salmon sperm and (b) washing in a solution comprising 2X SSPE and 1% Sarkosyl at 55°C; with a putative inhibitory compound under conditions in which, in the absence of said compound, said astacin metalloendopeptidase protein has astacin metalloendopeptidase activity; and

(b) determining if said putative inhibitory compound inhibits said activity.

17.3 (Once Amended) A test kit to identify a compound capable of inhibiting astacin metalloendopeptidase activity of a parasite, said test kit comprising an isolated protein having astacin metalloendopeptidase activity encoded by a *D. immitis* nucleic acid molecule that hybridizes to the complement of a nucleic acid molecule having a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:29, SEQ ID NO:30, SEQ ID NO:32, and SEQ ID NO:33, under conditions comprising (a) hybridizing in 2X SSPE, 1% Sarkosyl, 5X Denhardts and 0.1 mg/ml denatured salmon sperm and (b) washing in a solution comprising 2X SSPE and 1% Sarkosyl at 55°C; and a means for determining the extent of inhibition of said activity in the presence of a putative inhibitory compound.

17.4 (Previously Twice Amended) An isolated protein selected from the group consisting of: (a) a protein having an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:31, and SEQ ID NO:34; and (b) a protein of (a), wherein said protein comprises an at least 9 contiguous amino acid region of an amino acid sequence encoded by a nucleic acid molecule having a nucleic acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:29, SEQ ID NO:30, SEQ ID NO:32, and SEQ ID NO:33.